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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,186	12/07/2001	Sadeg M. Faris	Reveo-0153USAOON00	6324

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REVEO, INC.  
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ELMSFORD, NY 10523

EXAMINER

CHIN, PAUL T

ART UNIT	PAPER NUMBER
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3652

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/017,186

Applicant(s)

FARIS, SADEG M.

Examiner

PAUL T. CHIN

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4-9 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 0701 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

A

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 24, 2005, has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,4-8, and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandarkar et al.' handler (5,967,577) in view of Malcosky (3,809,506).

Bhandarkar et al. (5,967,577) discloses a handler for picking up an object, comprising a body (Fig. 3) having a plurality of openings including a holding surface level and a suction level, wherein the openings (54,54) at the suction level are larger than the openings (42,42) at the holding level, and further wherein the openings at the suction surface level are in fluid communication with at least a portion of the openings at the holding surface level, and a compressed air container (72), or an epoxy container, a conduit (70), and a controller (Col 5, lines 16-27), which are a vacuum source creating a pressure force, attached to the body at the suction surface level. Bhandarkar et al.' handler (5,967,577) does not clearly show at least one micro-mechanical valve in the at

least one of the openings. However, Malcosky (3,809,506) teaches a pump having an opening (see Fig. 3) and a valve (64) being attached at the opening to close or open the opening. Accordingly, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to provide a mechanical valve or a micro-mechanical valve on the at least one of the openings of Bhandarkar et al.'s handler (5,967,577) as taught by Malcosky (3,809,506) in order to manageably control the fluid flow. It is also pointed out that the size of the hinge valve is an obvious to those skilled in the art to optimize with respect to the relative opening to control the flow.

Re claim 2, Bhandarkar et al.'s handler (5,967,577) shows that the numbers of the openings (42,42) at the holding surface is greater than the numbers of the openings (54,54) at the suction surface level.

Re claims 4-6, Bhandarkar et al.'s handler (5,967,577) further shows at least one intermediate level between the holding surface and the suction surface levels wherein the openings (50,50, or 52,52) of the intermediate level are larger than the openings (42,42) of the holding surface level and smaller than the openings (54,54) of the suction surface level. Similarly, the numbers of the openings (50,50, or 52,52) at the intermediate level is greater than the numbers of the openings at the suction surface level.

Re claim 8, Bhandarkar et al.'s handler (5,967,577) shows the walls and baffles are formed of metal, aluminum (see Col 4, lines 29-35).

Re claim 16, further shows a handler body having a thickness (see Fig. 3) and a vacuum source (74). It is pointed out that Bhandarkar et al.'s handler (5,967,577) contains all the structural elements as recited in the above claims while the intended use or the functional limitation (i.e. suitable for holding fragile objects) is not patentably significant.

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Re claims 17-19, Bhandarkar et al.' handler (5,967,577) does not clearly show that the ratio of the handler body thickness (Fig. 3) to the holding surface hole diameter (42) is about  $10^7$  to about  $10^2$  or  $10^6$  to about  $10^4$ , or  $10^5$  to  $10^4$ . However, it would have been obvious to those skilled in the art to provide the desired ratio as listed above on the Bhandarkar et al.' handler (5,967,577) in order to manageably control the desired fluid flow.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bhandarkar et al. handler (5,967,577) and Malcosky (3,809,506), as applied to claim 1, and further in view of Ogawa (4,858,975).

Bhandarkar et al.' handler (5,967,577), as presented above, is used to pick up solder balls, but does not show the handler is being made of a semiconductor material (from the group consisting of silicon, III-V type semiconductors, II-IV type semiconductors, II-VI type semiconductor, IV-VI type semiconductors, Ge, C, Si-oxide, Si-nitride, and at least one of the foregoing materials).

However, Ogawa (4,858,975) shows a wafer holder (27) being made of silicon for etching process (Col 6, lines 60-68). Accordingly, it would have been obvious to those skilled in the art to provide the material selection on the body of Bhandarkar et al.' handler (5,967,577) being formed of a well known material, silicon, as taught by Ogawa (4,858,975) for etching process and also to grip a well known silicon wafer.

5. Claims 1,2,4-8, and 16-19, are rejected under 35 U.S.C. 102(e) as being anticipated by Nagaoka (6,336,492) in view of Malcosky (3,809,506).

Nagaoka (6,336,492) discloses a handler for applying vacuum holding force to an object,

comprising a body (Fig. 5) having a plurality of openings (27,25, 10a) including a holding surface level and a suction level, wherein the openings (427), (25,25), or openings on the plate (28) at the suction level are larger than the openings (10a, 10a) at the holding level, and further wherein the openings at the suction surface level are in fluid communication with at least a portion of the openings at the holding surface level, and a vacuum source (3) (see Fig. 3), which is an electric piston operation unit (see Col 4, lines 59-64), creating a pressure force, being attached to the body at the suction surface level. Nagaoka (6,336,492) does not clearly show at least one micro-mechanical valve in the at least one of the openings. However, Malcosky (3,809,506) teaches a pump having an opening (see Fig. 3) and a valve (64) being attached at the opening to close or open the opening. Accordingly, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to provide a mechanical valve or a micro-mechanical valve on the at least one of the openings of Nagaoka (6,336,492) as taught by Malcosky (3,809,506) in order to manageably control the fluid flow. It is also pointed out that the size of the hinge valve is an obvious to those skilled in the art to optimize with respect to the relative opening to control the flow.

Re claim 2, Nagaoka's handler (6,336,492) shows that the numbers of the openings (10a, 10a) at the holding surface is greater than the numbers of the openings ((25p25), or openings on the plate (28)) at the suction surface level.

Re claims 4-6, Nagaoka's handler (6,336,492) further shows at least one intermediate level between the holding surface and the suction surface levels wherein the openings (25,25) of the intermediate level are larger than the openings (10a, 10a) of the holding surface level and smaller than the openings (located on the plate 28) (see Fig. 5) of the suction surface level. Similarly, the numbers of the openings (25,25) at the intermediate

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level is greater than the numbers of the openings located on the plate (28) (see Fig. 5) at the suction surface level.

Re claim 7, Nagaoka's handler (6,336,492) further shows a valve (29) (see Fig. 5) in the one opening ((27) or (one of the openings at plate 28) of the openings to control the fluid flow.

Re claim 8, Nagaoka's handler (6,336,492) shows the central chamber (12) is being made of metal (see Col 5, lines 18-29).

Re claim 16, Nagaoka's handler (6,336,492) further shows a handler body having a thickness (see Fig. 5) and a vacuum source (3) (see Fig. 3), which is an electric piston operation unit (see Col 4, lines 59-64), creating a pressure force, being attached to the body at the suction surface level.

Re claims 17-19, it would have been an obvious to those skilled in the art to provide the desired ratio as listed above on the Nagaoka's handler (6,336,492) in order to manageably control the desired fluid flow.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagaoka's handler (6,336,492) and Malcosky (3,809,506), as applied to claim 1, and further in view of Ogawa (4,858,975).

Nagaoka's handler (6,336,492), as presented above, does not show that the body is formed of a semiconductor material (from the group consisting of silicon, III-V type semiconductors, II-IV type semiconductors, II-VI type semiconductor, IV-VI type semiconductors, Ge, C, Si-oxide, Si-nitride, and at least one of the foregoing materials). However, Ogawa (4,858,975) shows a wafer holder (27) being made of silicon for etching process (Col 6, lines 60-68). Accordingly, it would have been obvious design

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material choice on the body of Nagaoka's handler (6,336,492) being formed of a well known material, silicon, as taught by Ogawa (4,858,975) for etching process and also to grip a well known silicon wafer.

7. Claims 1,2,4-8, and 16-19, are rejected under 35 U.S.C. 102(e) as being anticipated by Lovegrove (2,572,640) in view of Malcosky (3,809,506).

Lovegrove (2,572,640) discloses a handler for applying vacuum holding force to a fragile object (19), comprising a body (Fig. 2) having a plurality of openings including a holding surface level and a suction level, wherein the openings (22,22 or 24,24) at the suction level are larger than the openings (18,18, or 14, 14) at the holding level, and further wherein the openings at the suction surface level are in fluid communication with at least a portion of the openings at the holding surface level. Lovegrove (2,572,640) does not clearly show at least one micro-mechanical valve in the at least one of the openings. However, Malcosky (3,809,506) teaches a pump having an opening (see Fig. 3) and a valve (64) being attached at the opening to close or open the opening. Accordingly, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to provide a mechanical valve or a micro-mechanical valve on the at least one of the openings of Lovegrove (2,572,640) as taught by Malcosky (3,809,506) in order to manageably control the fluid flow. It is pointed out that Lovegrove (2,572,640) also discloses a vacuum source (not shown) (see Col 5, lines 10-20) attached to the handle body (see Fig. 2) through a hose (30) at the suction surface level, Re claim 2, Lovegrove (2,572,640) shows that the numbers of the openings (14, 14 or 18, 18) at the holding surface is greater than the numbers of the openings (22,22), or openings on the plate (20,23) at the suction surface level.



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Re claims 4-6 and 16, Lovegrove's handling device (2,572,640) further shows at least one intermediate level (20) between the holding surface and the suction surface levels wherein the openings (22,22) (see Fig. 1) of the intermediate level are larger than the openings (14,14,18,18) (Fig. 2) of the holding surface level and smaller than the openings (24,24) of the suction surface level. Similarly, the frequency of the openings (22,22) at the intermediate level is greater than the numbers of the openings (24,24) at the suction surface level.

Re claim 8, Lovegrove's handling device (2,572,640) is being made of lightweight metal (Col 1, lines 22-32).

Re claims 17-19, it would have been an obvious to those skilled in the art to provide the desired ratio as listed above on the Lovegrove's handling device in order to manageably control the desired fluid flow.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1,2,4-9, and 16-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

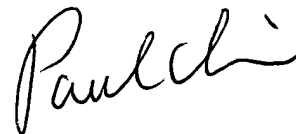
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL T. CHIN whose telephone number is (571) 272-6922. The examiner can normally be reached on MON-THURS (7:30 -6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EILEEN LILLIS can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Paul Chin", with a stylized flourish at the end.

PAUL T. CHIN  
Examiner  
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